

NOV 05 2007

**PATENT  
APPLICATION 10/822,316  
ATTORNEY DOCKET 2002-0387 (1014-059)****REMARKS**

Applicant respectfully thanks the Examiner for the consideration provided to this application, and respectfully requests reconsideration of this application.

Each of claims 1, 2, 8-10, 12, 17, 19, and 20 has been amended for at least one reason unrelated to patentability, including at least one of: to explicitly present one or more elements, limitations, phrases, terms and/or words implicit in the claim as originally written when viewed in light of the specification, thereby not narrowing the scope of the claim; to detect infringement more easily; to enlarge the scope of infringement; to cover different kinds of infringement (direct, indirect, contributory, induced, and/or importation, etc.); to expedite the issuance of a claim of particular current licensing interest; to target the claim to a party currently interested in licensing certain embodiments; to enlarge the royalty base of the claim; to cover a particular product or person in the marketplace; and/or to target the claim to a particular industry.

Claims 1-20 are now pending in this application. Each of claims 1, 19, and 20 is in independent form.

**I. The Objection to the Drawings**

The drawings were objected to under 37 CFR 1.83(a) because "the limitations cited in claim 1 must be shown or the feature(s) canceled from the claim(s)". This objection is respectfully traversed as being without any factual basis whatsoever. As an initial matter, Applicant respectfully submits that the grounds of this objection are unclear since no information is provided regarding which, if any, "limitations" are alleged not to be present. In addition, before the provisions of 37 CFR 1.83(a) are applied, the conditions of 37 CFR 1.81 must be met.

Under 37 CFR 1.81(a):

[t]he applicant for a patent is required to furnish a drawing of his or her invention where necessary for the understanding of the subject matter sought to be patented.

No evidence or reasoning is provided that any drawing is "necessary for the understanding of the subject matter sought to be patented". In addition, even if the provisions of 37 CFR 1.83(a) were applicable, a premise that Applicant traverses, the objection appears to be without a factual basis. Features of claim 1 can be found in at least Fig. 9 of the present application, as originally submitted, as follows:

**PATENT  
APPLICATION 10/822,316  
ATTORNEY DOCKET 2002-0387 (1014-059)**

receiving a plurality of elements for each of a plurality of continuous data streams (see at least element 9100);

treating the plurality of elements as a first data stream matrix that defines a first dimensionality (see at least element 9200);

reducing the first dimensionality of the first data stream matrix to obtain a second data stream matrix, the second data stream matrix comprising a plurality of sampled values of the first data stream matrix (see at least element 9300);

randomly computing a singular value decomposition of the second data stream matrix, a probability of computation determinable based upon a ratio of a magnitude of a sum of sampled values obtained since a prior computation of the singular value decomposition to a calculated product of a determined separating value of eigenvalues and a determined eigenvalue of the second data stream matrix (see at least element 9400); and

based on the singular value decomposition of the second data stream matrix, quantifying approximate linear correlations between the plurality of elements, the approximate linear correlations between the plurality of elements usable to identify and report a denial of service attack without address spoofing (see at least element 9600).

Thus, contrary to the assertions of the present Office Action, the features of claim 1 are shown in at least Fig. 9. For at least these reasons, reconsideration and withdrawal of the objection to the drawings is respectfully requested.

## **II. The Objection to the Abstract**

The present Office Action objected to the Abstract "because the abstract should be in narrative form to detail the invention". This objection is respectfully traversed for lack of legal basis. As an initial matter, this objection is vague and does not convey to Applicant what language of the Abstract is being objected to.

Moreover, the legal requirements for an abstract are enumerated in 37 C.F.R. 1.72(b), which states:

[a] brief abstract of the technical disclosure in the specification must commence on a

**PATENT  
APPLICATION 10/822,316  
ATTORNEY DOCKET 2002-0387 (1014-059)**

separate sheet, preferably following the claims, under the heading "Abstract" or "Abstract of the Disclosure." The sheet or sheets presenting the abstract may not include other parts of the application or other material. The abstract in an application filed under 35 U.S.C. 111 may not exceed 150 words in length.

Aspirations and/or desires of the USPTO, such as presented in the MPEP regarding what an Abstract "should" comprise, are not legally binding.

Applicant respectfully submits that the Abstract of the present Application as originally submitted was less than 150 words in length and thus was "brief", pertained to the "technical disclosure", commenced on a separate sheet under the heading "Abstract", and the sheet on which it appeared did not include other parts of the application or other material. Thus, the Abstract of the present Application as originally submitted fully complies with the requirements of 37 C.F.R. 1.72(b). For at least these reasons, Applicant respectfully requests a withdrawal of the objection to the Abstract.

### **III. The Statutory Subject Matter Rejections**

Each of claims 1-20 was rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Each of these rejections is respectfully traversed as moot in view of the present amendments to each of independent claims 1, 19, and 20. Specifically, each of claims 1, 19, and 20, from one of which each of claims 2-18 ultimately depends, states, *inter alia*, "the approximate linear correlations between the plurality of elements usable to automatically identify and automatically report a denial of service attack without address spoofing".

Thus, each of claims 1, 19, and 20 has a practical physical application and a useful and tangible result. For at least these reasons, reconsideration and withdrawal of each rejection of each of claims 1, 19, and 20 is respectfully requested. Also, reconsideration and withdrawal of each rejection of each of claims 2-18, each ultimately depending from independent claim 1, is also respectfully requested.

### **IV. The Indefiniteness Rejections**

Each of claims 8 and 12 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite. These rejections are respectfully traversed as moot in view of the present

**PATENT  
APPLICATION 10/822,316  
ATTORNEY DOCKET 2002-0387 (1014-059)**

amendments to each of claims 8 and 12. Specifically, claim 8 was objected to because of the use of the word "dynamically" in that claim. The word "dynamically" is no longer present in claim 8 as amended. Claim 12 was objected to because of the use of the phrase "Johnson-Lindenstrauss Lemma" in that claim. The phrase "Johnson-Lindenstrauss Lemma" is no longer present in claim 12 as amended.

For at least these reasons, reconsideration and withdrawal of each rejection of each of claims 8 and 12 is respectfully requested.

**V. The Anticipation Rejections**

Each of claims 1-2, 7-8, 12-14, and 17-20 was rejected as anticipated under 35 U.S.C. 102(b). In support of the rejection, various portions of a publication "Latent Semantic Indexing: A Probabilistic Analysis" ("Christos") were applied. These rejections are respectfully traversed as moot in view of the present amendments to the claims.

Specifically, each of claims 1, 19, and 20, from one of which each of claims 1-18 ultimately depends, states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, "randomly" computing "a singular value decomposition of the second data stream matrix, a probability of computation determinable based upon a ratio of a magnitude of a sum of sampled values obtained since a prior computation of the singular value decomposition to a calculated product of a determined separating value of eigenvalues and a determined eigenvalue of the second data stream matrix".

In addition, each of claims 1, 19, and 20, from one of which each of claims 2, 7-8, 12-14, and 17 ultimately depends, states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, "the approximate linear correlations between the plurality of elements usable to automatically identify and automatically report a denial of service attack without address spoofing".

Claim 2 states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, "the plurality of elements stored as a collection of hash functions".

Claim 8 states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, "said reducing activity obtains values for the second data stream matrix from a Gaussian distribution and preserves relative distances between vectors in a

**PATENT  
APPLICATION 10/822,316  
ATTORNEY DOCKET 2002-0387 (1014-059)**

resulting space of the second data stream matrix as compared to the first data stream matrix, the second matrix determined via a sliding window stream model”.

Claim 12 states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, “said quantifying activity occurs responsive to sliding window stream that varies over time”.

For at least these reasons, it is respectfully submitted that the rejection of claims 1, 19, and 20 is unsupported by Christos and should be withdrawn. Also, the rejection of claims 2, 7-8, 12-14, and 17, each ultimately depending from independent claim 1, is unsupported by Christos and also should be withdrawn.

#### **VI. The Obviousness Rejections**

Each of claims 3-6, 9-11, and 15-16 was rejected under 35 U.S.C. 103(a) as being unpatentable over various portions of a publication “Latent Semantic Indexing: A Probabilistic Analysis” (“Christos”) and/or U.S. Patent 7,065,544 (“Moreno”). Each of these rejections is respectfully traversed as moot in view of the present claim amendments.

As indicated, *supra*, claim 1, from which each of claims 3-6, 9-11, and 15-16 ultimately depends, states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, “randomly computing a singular value decomposition of the second data stream matrix, a probability of computation determinable based upon a ratio of a magnitude of a sum of sampled values obtained since a prior computation of the singular value decomposition to a calculated product of a determined separating value of eigenvalues and a determined eigenvalue of the second data stream matrix”.

As stated, *supra*, claim 1, from which each of claims 3-6, 9-11, and 15-16 ultimately depends, states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, “the approximate linear correlations between the plurality of elements usable to automatically identify and automatically report a denial of service attack without address spoofing”.

Claim 9 states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, “said computing activity repeated responsive to a change in the

NOV 05 2007

PATENT  
APPLICATION 10/822,316  
ATTORNEY DOCKET 2002-0387 (1014-059)

second data stream matrix caused by additional data sampled from a data stream of the plurality of continuous data streams".

Claim 10 states, *inter alia*, yet no substantial evidence has been presented that the applied portions of Christos teach, "responsive to an expiration of some entries in the second data stream matrix, periodically repeating said computing activity".

For at least these reasons, the rejection of claims 3-6, 9-11, and 15-16, each ultimately depending from independent claim 1, is unsupported by Christos and should be withdrawn.

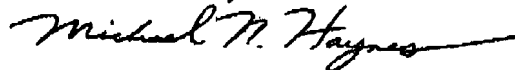
CONCLUSION

It is respectfully submitted that the application is in clear condition for allowance. Reconsideration, withdrawal of all grounds of rejection, and issuance of a Notice of Allowance are earnestly solicited.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to Deposit Account 50-2504. The Examiner is invited to contact the undersigned at 434-972-9988 to discuss any matter regarding this application.

Respectfully submitted,

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